



CASE REPORT

REHABILITATION OF PARTIALLY AMPUTATED FINGER WITH SILICONE PROSTHESIS- A CASE REPORT

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ABSTRACT

Removal of an injured or diseased body part is called amputation. The etiology for amputation may be traumatic injury, or a planned operation to prevent the spread of the disease in an infected finger or hand. Extra-oral prostheses are generally made of silicones to match the skin colour, provides life like appearance, good retention, and comfort for the patient. This case report describes the rehabilitation of a patient with partially amputated index finger with silicone.

INTRODUCTION

Amputation is the removal of an injured or diseased body part. It may be the result of a traumatic injury, or it may be a planned operation to prevent the spread of the disease in an infected finger or hand. Any deformity, especially with the hands, which are constantly in the view of the patient and others, may not only lead to loss of strength and grasp, but also cause marked psychological trauma. This article presents a case report of a patient with partially amputated index finger who was rehabilitated using custom made silicone finger prosthesis. Silicone prostheses are made to match the skin colour, provides life like appearance, good retention, and comfort for the patient. Here the silicone used for the fabrication of prosthesis was room temperature vulcanised or RTV silicones. The advantages of the material include chemical inertness, ease of staining, flexibility, elasticity and high edge strength which makes the prosthesis more durable without much change in color and fit.

CASE REPORT

A 18-year-old male patient reported to the Department of Prosthodontics, with the chief complain of a partially missing finger. On examination, it was observed that the patient had lost part of his left index finger 5 years back in a traumatic injury by mechanical lathe.

The wound was completely healed without any sign of infection or inflammation, with surrounding area appearing normal. An informed consent was taken from the patient before starting the treatment to ensure his willingness and co-operation.

Treatment procedure

Impression of hand with partially missing finger and another hand was made in irreversible hydrocolloid (Alginate, Velpast Plus, China). A thin layer of petroleum jelly (Vaseline, Hindustan Unilever Ltd., Mumbai, India) was applied to the hand before making the impression. Vaseline facilitates easy removal of impression without tearing. The impressions were then poured in dental stone (Type 3 Labstone, Kalabhai, Karson Pvt. Ltd., Mumbai, India) using vibrator to avoid voids and the working casts were retrieved. A separate impression of the amputated finger was made in a similar manner and a corresponding stump of the same was made with dental stone. Index finger of the patient's right hand was selected as the donor site. An impression of the donor site was made using polyvinyl-siloxane (Zeta Plus, New Delhi, India) impression material and modeling wax was poured into it for the purpose of duplication of the lost finger. The bearable compressibility of the stump was measured using a surgical tape and the area of remaining digit which was designated for contact with silicone prosthesis was scraped accordingly on cast, for snug fit of prosthesis.

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Fig. 1. Preoperative view



Fig. 2. Impression making

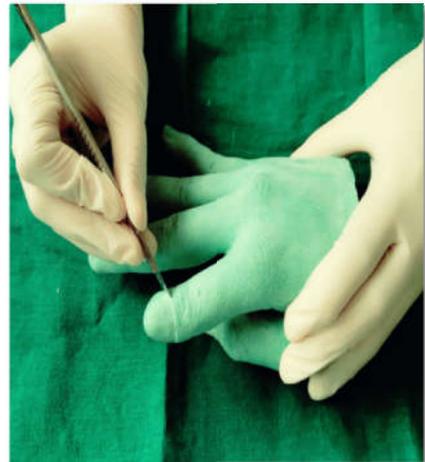


Fig. 3. Checking the compressibility



Fig. 4. Try-in



Fig. 5. Flasking



Fig. 6. Dewaxing



Fig. 7. Colour matching



Fig. 8. Packing



Fig. 9. Post-operative view

The wax pattern of the doner site was modified, it was hollowed and adapted to the scraped cast. Surface details were incorporated to simulate the finger of the opposite hand. Try in was done, the fit, stability and seating of the wax pattern was evaluated along with the shape and size of the pattern. Once the patient and the dentist were satisfied, the pattern was transferred to the stump for the purpose of flasking. The dorsal and ventral sides were marked and the pattern invested in a dental flask. Dewaxing was done and complete elimination of wax was ensured. The flask was allowed to cool.

The final packing was done in presence of the patient and under natural sunlight to ensure proper color matching. Separate shades were prepared for dorsal and ventral surfaces by incremental incorporation of intrinsic stains. The shade was confirmed by placing the increments of silicone material (MP Sai enterprise pvt. Ltd, Thane) in a cellophane sheet and matching was done with the patient's finger. After getting the desired shade, the colored silicone was layered into the mold, and the flask was closed applying light pressure. Excess material was removed and bench curing was done for 24 hours.

After polymerization, the prosthesis was carefully retrieved from the mold and finishing was done. Finger prosthesis was retained with the help of an adjustable ring. The patient was demonstrated about the use and instructions for maintenance of the prosthesis were given. Patient was advised not to expose the prosthesis to extreme heat or sunlight. There after a 3 month follow-up was done and it was noted that the patient had no complaints and was satisfied about esthetics and comfort of the finger prosthesis.

DISCUSSION

The amputation of one or more fingers of the hand, as the consequence of trauma or congenital absence of one or more phalanges, carries a serious reduction of hand function and social dysfunction for the patient. Advances in surgical sciences in the form of microvascular re-implantations have helped to save many severely injured and traumatically amputated digits. However, in most of the patients, microvascular reconstruction is contraindicated, unavailable or unsuccessful.

Customized silicone prostheses have a wider rate of acceptance, owing to their comfort, durability, and stain resistance, which are far superior to any other available extra-oral maxillofacial materials. The gentle, constant pressure of an elastomer prosthesis can help desensitize and protect the injured tip. This article describes the prosthetic rehabilitation of a partial amputated finger with silicone prosthesis. The prosthesis thus fabricated merged with the adjacent tissues providing desired aesthetics and psychological boost to the patient.

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